



# Polypropylene Film Capacitors

Radial Leded for Power Semiconductor Circuits



## FEATURES

High Pulse Currents - High voltage

## APPLICATIONS

Power Semiconductor Circuits – SCR Commutation – Ballasts controls – Switching Power Supplies

|                                                                                             |                                                                           |         |     |                       |                                                                         |                                                                            |      |  |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------|-----|-----------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------|------|--|
| Operating Temperature Range                                                                 | -55°C to +105°C                                                           |         |     |                       |                                                                         |                                                                            |      |  |
| Capacitance Tolerance                                                                       | ±10% at 1 kHz, 25°C<br>±5% optional                                       |         |     |                       |                                                                         |                                                                            |      |  |
| AC voltage (50/60 Hz)                                                                       | WVDC                                                                      | 250     | 400 | 630                   | 1000                                                                    | 1600                                                                       | 2000 |  |
|                                                                                             | VAC                                                                       | 160     | 200 | 400                   | 630                                                                     | 650                                                                        | 700  |  |
|                                                                                             | For T>+85°C , The voltage (DC/AC) must be decreased by (1.5/2.25)% per °C |         |     |                       |                                                                         |                                                                            |      |  |
| Dissipation Factor (MAX)<br>25°C                                                            | Frequency (kHz)                                                           | C≤0.1uF |     | 0.1uF<C≤1uF           |                                                                         | C>1uF                                                                      |      |  |
|                                                                                             | 1                                                                         | 0.05%   |     | 0.04%                 |                                                                         | 0.05%                                                                      |      |  |
|                                                                                             | 10                                                                        | 0.05%   |     | 0.06%                 |                                                                         | -                                                                          |      |  |
|                                                                                             | 100                                                                       | 0.16%   |     | -                     |                                                                         | -                                                                          |      |  |
| Insulation Resistance<br>@25°C (<70% RH)for 1 minute at<br>100VDC applied                   | Capacitance                                                               |         |     | Insulation Resistance |                                                                         |                                                                            |      |  |
|                                                                                             | <0.33μF                                                                   |         |     | 100000 MΩ             |                                                                         |                                                                            |      |  |
|                                                                                             | >0.33μF                                                                   |         |     | 30000 MΩxμF           |                                                                         |                                                                            |      |  |
| Self Inductance                                                                             | <1 nano-Henry per mm of lead spacing                                      |         |     |                       |                                                                         |                                                                            |      |  |
| Capacitance Drift Factor                                                                    | <0.5% after 2 years at 40°C                                               |         |     |                       |                                                                         |                                                                            |      |  |
| Load Life                                                                                   | 2000 Hours, +85C with 125% of rated voltage                               |         |     |                       |                                                                         |                                                                            |      |  |
|                                                                                             | Capacitance Change                                                        |         |     |                       | ≤1% of initially measured value                                         |                                                                            |      |  |
|                                                                                             | Dissipation Factor                                                        |         |     |                       | ≤0.001 at 10kHz and 25°C for C≤1uF<br>≤0.001 at 1kHz and 25°C for C>1uF |                                                                            |      |  |
|                                                                                             | Insulation Resistance                                                     |         |     |                       | ≥50% of maximum specified value                                         |                                                                            |      |  |
| Reliability<br>(0.5xRated Voltage,<br>40°C)<br>1 FIT=1 failure/1 billion<br>component hours | 2 Fit, VDC≤400 WVDC<br>1 Fit, VDC>400 WVDC                                |         |     |                       |                                                                         |                                                                            |      |  |
|                                                                                             | Capacitance Change                                                        |         |     |                       | ≤10% of initially measured value                                        |                                                                            |      |  |
|                                                                                             | Dissipation Factor                                                        |         |     |                       | ≤200% of initially specified value                                      |                                                                            |      |  |
|                                                                                             | Insulation Resistance                                                     |         |     |                       | ≥50% of maximum specified value                                         |                                                                            |      |  |
| Damp Heat test                                                                              | 56 days at40°C with 90 to 95%RH, +40°C and no voltage applied             |         |     |                       |                                                                         |                                                                            |      |  |
|                                                                                             | Capacitance Change                                                        |         |     |                       | ≤5% of initially measured value                                         |                                                                            |      |  |
|                                                                                             | Dissipation Factor                                                        |         |     |                       | ≤0.005 at 1kHz and 25°C                                                 |                                                                            |      |  |
|                                                                                             | Insulation Resistance                                                     |         |     |                       | ≥50% of maximum specified value                                         |                                                                            |      |  |
| Self Inductance                                                                             | <1 nano-Henry per mm of lead spacing                                      |         |     |                       |                                                                         |                                                                            |      |  |
| Capacitance Drift Factor                                                                    | <0.5% after 2 years at 40°C                                               |         |     |                       |                                                                         |                                                                            |      |  |
| Capacitance Temperature Coefficient                                                         | -200 ppm/°C, ±100ppm/°C                                                   |         |     |                       |                                                                         |                                                                            |      |  |
| Dielectric Strength                                                                         | Terminal to Terminal                                                      |         |     |                       |                                                                         | Terminal to case                                                           |      |  |
|                                                                                             | 160% of rated VDC or 150% VAC applied for 2 Seconds and 25°C              |         |     |                       |                                                                         | 3kVAC @ 50/60 Hz applied between terminals and case for 60 seconds at 25°C |      |  |
| Dielectric Construction                                                                     | Polypropylene<br>Metallized film                                          |         |     |                       |                                                                         |                                                                            |      |  |
| Coating                                                                                     | Flame Retardant epoxy resin (UL94V0)                                      |         |     |                       |                                                                         |                                                                            |      |  |
| Leads                                                                                       | Lead free tinned copper leads                                             |         |     |                       |                                                                         |                                                                            |      |  |



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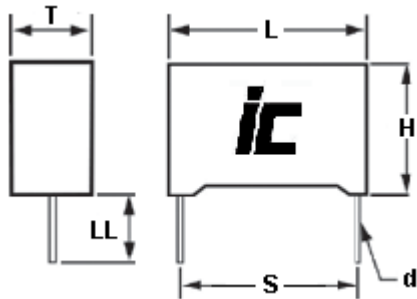
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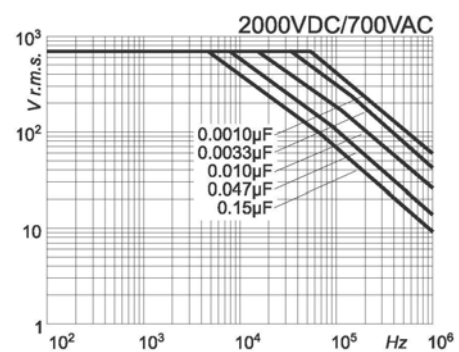
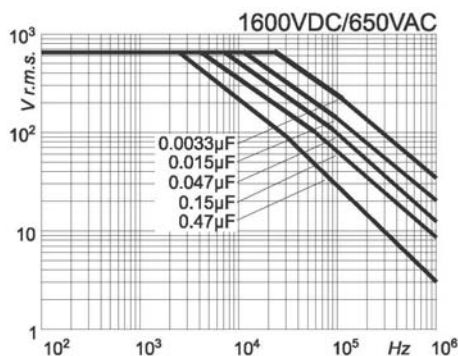
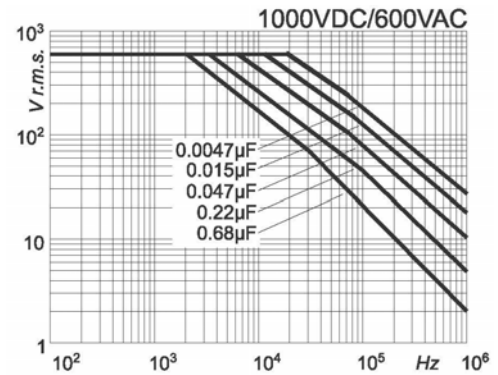
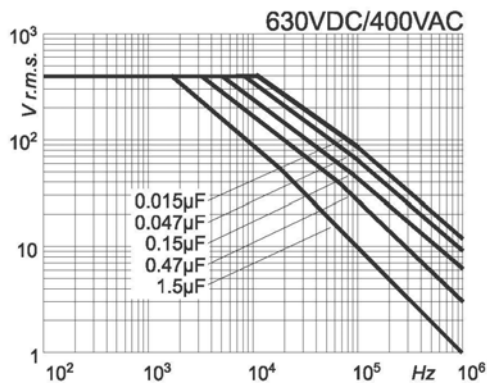
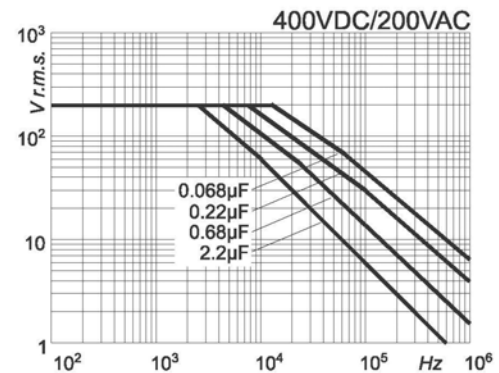
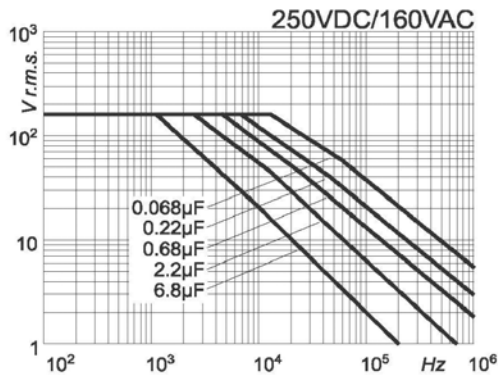
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|    |         |         |        |        |
|----|---------|---------|--------|--------|
| L  | 18      | 26.5    | 32     | 42.5   |
| S  | 15      | 22.5    | 27.5   | 37.5   |
| d  | 0.8     | 0.8     | 0.8    | 1.2    |
| LL | 5.0+1.0 | 5.0+1.0 | 30+5.0 | 30+5.0 |

Permissible (sinusoidal) AC voltage versus frequency for a temperature rise of 10°C  
Not for across the line applications



# PPB

## High Voltage Pulse Radial Lead Snubber

| Capacitance (μF) | WVDC | IC PART NUMBER | dv/dt (v/μ sec.) | Dims LxHxT (mm) | S (MM) | d (MM) |
|------------------|------|----------------|------------------|-----------------|--------|--------|
| 0.001            | 2000 | 102PPB202K     | 6200             | 26.5x15x6       | 22.5   | 0.8    |
| 0.001            | 2000 | 102PPB202KE    | 9000             | 18x11x5         | 15     | 0.8    |
| 0.0015           | 2000 | 152PPB202KE    | 9000             | 18x11x5         | 15     | 0.8    |
| 0.0022           | 1600 | 222PPB162K     | 7500             | 18x11x5         | 15     | 0.8    |
| 0.0022           | 2000 | 222PPB202KE    | 9000             | 18x12x6         | 15     | 0.8    |
| 0.0033           | 1000 | 332PPB102K     | 5500             | 18x11x5         | 15     | 0.8    |
| 0.0033           | 1600 | 332PPB162K     | 7500             | 18x12x6         | 15     | 0.8    |
| 0.0033           | 2000 | 332PPB202K     | 6200             | 26.5x15x6       | 22.5   | 0.8    |
| 0.0033           | 2000 | 332PPB202KB    | 9000             | 18x13.5x7.5     | 15     | 0.8    |
| 0.0047           | 630  | 472PPB630K     | 3300             | 18x11x5         | 15     | 0.8    |
| 0.0047           | 1000 | 472PPB102K     | 5500             | 18x11x5         | 15     | 0.8    |
| 0.0047           | 1600 | 472PPB162K     | 7500             | 18x13.5x7.5     | 15     | 0.8    |
| 0.0047           | 2000 | 472PPB202K     | 6200             | 26.5x15x6       | 22.5   | 0.8    |
| 0.0047           | 2000 | 472PPB202KB    | 9000             | 18x14.5x8.5     | 15     | 0.8    |
| 0.0068           | 630  | 682PPB630K     | 3300             | 18x11x5         | 15     | 0.8    |
| 0.0068           | 1000 | 682PPB102K     | 5500             | 18x11x5         | 15     | 0.8    |
| 0.0068           | 1600 | 682PPB162K     | 7500             | 18x14.5x8.5     | 15     | 0.8    |
| 0.0068           | 2000 | 682PPB202K     | 6200             | 26.5x15x6       | 22.5   | 0.8    |
| 0.0068           | 2000 | 682PPB202KB    | 9000             | 18x16x10        | 15     | 0.8    |
| 0.01             | 630  | 103PPB630K     | 3300             | 18x11x5         | 15     | 0.8    |
| 0.01             | 1000 | 103PPB102K     | 2500             | 26.5x15x6       | 22.5   | 0.8    |
| 0.01             | 1000 | 103PPB102KE    | 6200             | 18x12x6         | 15     | 0.8    |
| 0.01             | 1600 | 103PPB162KB    | 7500             | 18x16x10        | 15     | 0.8    |
| 0.01             | 1600 | 103PPB162K     | 3800             | 26.5x15x6       | 22.5   | 0.8    |
| 0.01             | 2000 | 103PPB202K     | 6200             | 26.5x17x8.5     | 22.5   | 0.8    |
| 0.015            | 630  | 153PPB630K     | 3300             | 18x11x5         | 15     | 0.8    |
| 0.015            | 1000 | 153PPB102K     | 2600             | 26.5x15x6       | 22.5   | 0.8    |
| 0.015            | 1000 | 153PPB102KB    | 5500             | 18x13.5x7.5     | 15     | 0.8    |
| 0.015            | 1600 | 153PPB162K     | 3800             | 26.5x16x7       | 22.5   | 0.8    |
| 0.015            | 2000 | 153PPB202K     | 6200             | 26.5x18.5x10    | 22.5   | 0.8    |
| 0.022            | 630  | 223PPB630K     | 3300             | 18x12x6         | 15     | 0.8    |
| 0.022            | 1000 | 223PPB102K     | 2600             | 26.5x15x6       | 22.5   | 0.8    |
| 0.022            | 1000 | 223PPB102KB    | 5500             | 18x14.5x8.5     | 15     | 0.8    |
| 0.022            | 1600 | 223PPB162K     | 3800             | 26.5x17x8.5     | 22.5   | 0.8    |
| 0.022            | 2000 | 223PPB202K     | 4200             | 32x20x11        | 27.5   | 0.8    |
| 0.022            | 2000 | 223PPB202KG    | 6200             | 26.5x22x13      | 22.5   | 0.8    |
| 0.033            | 400  | 333PPB400K     | 910              | 18x11x5         | 15     | 0.8    |
| 0.033            | 630  | 333PPB630K     | 3300             | 18x13.5x7.5     | 15     | 0.8    |
| 0.033            | 1000 | 333PPB102K     | 2600             | 26.5x16x7       | 22.5   | 0.8    |
| 0.033            | 1600 | 333PPB162K     | 3800             | 26.5x18.5x10    | 22.5   | 0.8    |
| 0.033            | 2000 | 333PPB202K     | 4200             | 32x22x13        | 27.5   | 0.8    |
| 0.047            | 250  | 473PPB250K     | 560              | 18x11x5         | 15     | 0.8    |
| 0.047            | 400  | 473PPB400K     | 910              | 18x12x6         | 15     | 0.8    |
| 0.047            | 630  | 473PPB630K     | 2050             | 26.5x15x6       | 22.5   | 0.8    |
| 0.047            | 630  | 473PPB630KB    | 3300             | 18x16x10        | 15     | 0.8    |
| 0.047            | 1000 | 473PPB102K     | 2600             | 26.5x17x8.5     | 22.5   | 0.8    |
| 0.047            | 1600 | 473PPB162K     | 2700             | 32x20x11        | 27.5   | 0.8    |
| 0.047            | 1600 | 473PPB162KG    | 3800             | 26.5x22x13      | 22.5   | 0.8    |
| 0.047            | 2000 | 473PPB202K     | 4200             | 32x24.5x15      | 27.5   | 0.8    |
| 0.068            | 250  | 683PPB250K     | 560              | 18x12x6         | 15     | 0.8    |
| 0.068            | 400  | 683PPB400K     | 910              | 18x13.5x7.5     | 15     | 0.8    |
| 0.068            | 630  | 683PPB630K     | 2050             | 26.5x16x7       | 22.5   | 0.8    |
| 0.068            | 1000 | 683PPB102K     | 2600             | 26.5x18.5x10    | 22.5   | 0.8    |
| 0.068            | 1600 | 683PPB162K     | 2700             | 32x22x13        | 27.5   | 0.8    |
| 0.068            | 2000 | 683PPB202K     | 4200             | 32x28x14        | 27.5   | 0.8    |
| 0.1              | 250  | 104PPB250K     | 560              | 18x13.5x7.5     | 15     | 0.8    |
| 0.1              | 400  | 104PPB400K     | 910              | 18x14.5x8.5     | 15     | 0.8    |

| Capacitance (μF) | WVDC | IC PART NUMBER | dv/dt (v/μ sec.) | Dims LxHxT (mm) | S (MM) | d (MM) |
|------------------|------|----------------|------------------|-----------------|--------|--------|
| 0.1              | 630  | 104PPB630K     | 2050             | 26.5x17x8.5     | 22.5   | 0.8    |
| 0.1              | 1000 | 104PPB102K     | 1850             | 32x20x11        | 27.5   | 0.8    |
| 0.1              | 1000 | 104PPB102KG    | 2600             | 26.5x22x13      | 22.5   | 0.8    |
| 0.1              | 1600 | 104PPB162K     | 2700             | 32x28x14        | 27.5   | 0.8    |
| 0.1              | 2000 | 104PPB202K     | 2600             | 42.5x28x17      | 37.5   | 1      |
| 0.1              | 2000 | 104PPB202KB    | 4200             | 32x33x18        | 27.5   | 1      |
| 0.15             | 250  | 154PPB250K     | 560              | 18x14.5x8.5     | 15     | 0.8    |
| 0.15             | 400  | 154PPB400K     | 520              | 26.5x16x7       | 22.5   | 0.8    |
| 0.15             | 400  | 154PPB400KE    | 910              | 18x16x10        | 15     | 0.8    |
| 0.15             | 630  | 154PPB630KG    | 1500             | 26.5x20x11      | 22.5   | 0.8    |
| 0.15             | 630  | 154PPB630K     | 1500             | 32x20x11        | 27.5   | 0.8    |
| 0.15             | 1000 | 154PPB102K     | 1850             | 32x22x13        | 27.5   | 0.8    |
| 0.15             | 1600 | 154PPB162K     | 1700             | 42.5x28x17      | 37.5   | 1      |
| 0.15             | 1600 | 154PPB162KB    | 2700             | 32x33x18        | 27.5   | 1      |
| 0.15             | 2000 | 154PPB202K     | 2600             | 42.5x30x22      | 37.5   | 1      |
| 0.22             | 250  | 224PPB250K     | 320              | 26.5x15x6       | 22.5   | 0.8    |
| 0.22             | 250  | 224PPB250KB    | 560              | 18x16x10        | 15     | 0.8    |
| 0.22             | 400  | 224PPB400K     | 520              | 26.5x18.5x10    | 22.5   | 0.8    |
| 0.22             | 630  | 224PPB630K     | 1500             | 32x22x13        | 27.5   | 0.8    |
| 0.22             | 1000 | 224PPB102K     | 1850             | 32x28x14        | 27.5   | 0.8    |
| 0.22             | 1600 | 224PPB162K     | 1700             | 42.5x28x17      | 37.5   | 1      |
| 0.22             | 2000 | 224PPB202K     | 2600             | 42.5x37x28      | 37.5   | 1      |
| 0.33             | 250  | 334PPB250K     | 320              | 26.5x17x8.5     | 22.5   | 0.8    |
| 0.33             | 400  | 334PPB400K     | 520              | 26.5x20x11      | 22.5   | 0.8    |
| 0.33             | 400  | 334PPB400KH    | 400              | 32x17x9         | 27.5   | 0.8    |
| 0.33             | 630  | 334PPB630K     | 1500             | 32x24.5x15      | 27.5   | 0.8    |
| 0.33             | 1000 | 334PPB102K     | 1200             | 42.5x28x17      | 37.5   | 1      |
| 0.33             | 1000 | 334PPB102KB    | 1850             | 32x33x18        | 27.5   | 1      |
| 0.33             | 1600 | 334PPB162K     | 1700             | 42.5x30x22      | 37.5   | 1      |
| 0.47             | 250  | 474PPB250K     | 320              | 26.5x18.5x10    | 22.5   | 0.8    |
| 0.47             | 400  | 474PPB400K     | 400              | 32x22x13        | 27.5   | 0.8    |
| 0.47             | 400  | 474PPB400KG    | 520              | 26.5x22x13      | 22.5   | 0.8    |
| 0.47             | 630  | 474PPB630KB    | 1500             | 32x33x18        | 27.5   | 1      |
| 0.47             | 630  | 474PPB630K     | 950              | 42.5x28x17      | 37.5   | 1      |
| 0.47             | 1000 | 474PPB102K     | 1200             | 42.5x30x22      | 37.5   | 1      |
| 0.47             | 1600 | 474PPB162K     | 1700             | 42.5x37x28      | 37.5   | 1      |
| 0.68             | 250  | 684PPB250K     | 240              | 32x20x11        | 27.5   | 0.8    |
| 0.68             | 250  | 684PPB250KB    | 320              | 26.5x20x11      | 22.5   | 0.8    |
| 0.68             | 400  | 684PPB400K     | 400              | 32x24.5x15      | 27.5   | 0.8    |
| 0.68             | 630  | 684PPB630K     | 950              | 42.5x28x17      | 37.5   | 1      |
| 0.68             | 1000 | 684PPB102K     | 1200             | 42.5x37x28      | 37.5   | 1      |
| 1                | 250  | 105PPB250K     | 240              | 32x20x11        | 27.5   | 0.8    |
| 1                | 250  | 105PPB250KG    | 320              | 26.5x22x13      | 22.5   | 0.8    |
| 1                | 400  | 105PPB400KB    | 400              | 32x33x18        | 27.5   | 1      |
| 1                | 400  | 105PPB400K     | 280              | 42.5x28x17      | 37.5   | 1      |
| 1                | 630  | 105PPB630K     | 950              | 42.5x30x22      | 37.5   | 1      |
| 1                | 1000 | 105PPB102K     | 1200             | 42.5x37x28      | 37.5   | 1      |
| 1.5              | 250  | 155PPB250K     | 240              | 32x24.5x15      | 27.5   | 0.8    |
| 1.5              | 400  | 155PPB400K     | 280              | 42.5x28x17      | 37.5   | 1      |
| 1.5              | 630  | 155PPB630K     | 950              | 42.5x37x28      | 37.5   | 1      |
| 2.2              | 250  | 225PPB250K     | 240              | 32x28x14        | 27.5   | 0.8    |
| 2.2              | 250  | 225PPB250KB    | 170              | 42.5x28x17      | 37.5   | 1      |
| 2.2              | 400  | 225PPB400K     | 280              | 42.5x30x22      | 37.5   | 1      |
| 3.3              | 250  | 335PPB250K     | 170              | 42.5x30x22      | 37.5   | 1      |
| 3.3              | 400  | 335PPB400K     | 280              | 42.5x37x28      | 37.5   | 1      |
| 4.7              | 250  | 475PPB250K     | 170              | 42.5x30x22      | 37.5   | 1      |
| 6.8              | 250  | 685PPB250K     | 170              | 42.5x37x28      | 37.5   | 1      |